

ARNOLD ARBORETUM

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Hawthorns. Hawthorns (*Crataegus*) have been in flower in the Arboretum during the last two or three weeks, and others will flower in succession until nearly the first of July; on some of the species the fruit ripens in August and on others as late as November; and in a collection of these trees and shrubs there is much beauty of flower and fruit to be seen during more than half the year. The genus is more largely represented in species and in the number of individuals in eastern North America than in other parts of the world; a few species are found in the Rocky Mountain region and in the Pacific states; there is a single species in Japan, and less than twenty in all continental Asia. There are, however, several species in southwestern, southern and central Europe and two species in western Europe. Before 1900, when the study of American Hawthorns was begun seriously at the Arboretum, little was known about the American species which had been singularly neglected by American botanists and American gardeners. Several species, however, had reached Europe at the time when European plant collectors were sent to America, and a few American species had been described by European botanists from plants cultivated in European gardens. Twenty years ago plants raised from seeds collected principally in Missouri and Arkansas in 1880 began to flower in the Arboretum and could not be referred to any of the species which had been previously described. This led to a systematic study of the wild plants in many parts of the country, and to the bringing together here of a large amount of material. During the last fifteen years many species have been described at the Arboretum by authors working independently, and Mr. Dawson has sown the seeds of 3306 Hawthorns gathered in the United States from wild plants.

It cannot be said, however, that this investigation has been more than commenced and there are still great regions in the United States where Hawthorns are known to exist which have not yet been worked critically with reference to this genus. Some of the plants which these seeds sown at the Arboretum have produced have been arranged on the eastern slope of Peter's Hill and others have been widely distributed in this country and Europe. There is a large collection also of Hawthorns mainly obtained at the Arboretum in the parks of Rochester, New York, and there is one large Arboretum collection in England and another in France. In a few years, therefore, there will be a good opportunity for a comparative study of these plants from a botanical and horticultural standpoint, for last year some three hundred and fifty different species flowered on Peter's Hill and probably this year a still larger number will produce flowers and fruits there. Of the species which have grown to a large size in the Arboretum and have proved themselves desirable garden plants may be mentioned *Crataegus Arnoldiana*, *C. mollis*, *C. arkansana*, and *C. submollis*. These belong to the Molles Group, in which the species are trees with wide heads, large early flowers and large, usually brilliant scarlet fruits. A large plant of *C. coccinioides* in the old Crataegus Collection, between the Shrub Collection and the Parkway and near the Forest Hills entrance, has itself shown this year the decorative value of an American Hawthorn. It is a round-headed tree from the neighborhood of St. Louis with large flowers in very compact, nearly globose clusters and large round fruit ripening in the early autumn. In this old collection are other plants which are now large enough to show their value for the decoration of parks and gardens; from among them attention is called to *C. Crus-galli*, the Cockspur Thorn, which has perhaps been more generally cultivated than any other American species and is the type of one of the most distinct of the groups into which the genus is divided; *C. nitida*, a flat-topped tree with wide-spreading branches and narrow lustrous leaves. Although the flowers and fruits are comparatively small, their abundance, the lustre of the leaves, and the habit of the tree make it one of the handsomest of the Thorns which can be successfully cultivated in this climate. *C. pruinosa*, *C. aprica* and *C. succulenta* are well represented here and are good examples of three large and distinct groups. *C. pruinosa* is a small tree with smooth bluish green leaves, large flowers made conspicuous by the large rose-colored anthers of the twenty stamens, and globose fruits, bright green and covered with a glaucous bloom when fully grown, and turning scarlet late in the season. In all eastern North America there are few handsomer Thorns. *C. aprica* is interesting as one of the few hardy representatives of the Flavae Group which is entirely confined to the southeastern states with a few representatives ascending into the valleys of the southern Appalachian Mountains. It is not one of the handsomest species of the group for the flowers are not so large as those of many others, and the anthers of the ten stamens are yellow. *C. succulenta* is a showy representative of the Tomentosae Group which is one of the largest of the northern groups and is specially beautiful in autumn when the branches are covered with large clusters of drooping scarlet translucent fruits. Two black-fruited

species are interesting in the old collection, *C. Douglasii* from Washington and Oregon, and *C. rivularis* from the region between the Rocky Mountains and the Sierra Nevada. Many species in the new collection on Peter's Hill are already large enough to show their character and value, especially those in the Intricatae Group. Nearly all the species in this group are small shrubs of the northern and middle states with large flowers, yellow or rose-colored anthers, and large, showy, late-ripening fruits. Long entirely overlooked by American botanists, this group contains some of the most beautiful garden plants to be found among North American shrubs. Among foreign species the earliest to flower in the Arboretum is *Crataegus nigra*, a tree from eastern Europe with large flowers and early-ripening black fruit. There is a large specimen in the old collection near the southern end of the Willow Collection. The two species of western Europe, *C. oxycantha* and *C. monogyna*, and many varieties are, of course, established in the Arboretum where *C. orientalis* from southeastern Europe, with deeply divided silvery leaves, large flowers and orange and red fruit is a plant which deserves the attention of all lovers of hardy trees and shrubs. The most beautiful, however, of all the foreign Thorns here is *C. pinnatifida* from eastern Siberia and northern China. The large, deeply divided and lustrous leaves make this one of the handsomest plants of the whole genus; the flowers are large and abundant, and the crimson fruits are produced in profusion. A form of this plant (var. *major*) with larger leaves and much larger fruit, is cultivated in orchards as a fruit tree in the neighborhood of Peking. With the exception of a few varieties of the species of western Europe with red, rose-colored or pink flowers, all Hawthorns have white flowers; they are therefore less showy when in bloom than many of the Crabapples, on most of which the flowers are more or less tinged with pink. The flowering period, however, is much longer and the fruit is far more beautiful than that of any of the Asiatic Crabapples. As flowering plants the Hawthorns are certainly less beautiful than some of the Japanese Cherries, but Cherry blossoms last only a few days and the fruits of the Japanese species have no ornamental value. Like many other trees and shrubs of the Rose family, *Crataegus* suffers from the attacks of the San José scale, and the leaves of some species are badly disfigured by a leaf miner.

American Crabapples. Several of the American Crabapples are now in bloom. Those of the eastern states produce large, pink, very fragrant flowers which do not open until the leaves are partly grown, and depressed-globose, fragrant, greenish yellow fruits covered with a sticky exudation. The earliest to flower, *Malus glaucescens*, may be seen in the Peter's Hill group. It is a native of western New York and of Ontario, and is a treelike shrub or small tree distinguished from the other northern species by the pale lower surface of the leaves and the hairy covering on the outer surface of the calyx of the flower. The best known of the northern species, *M. coronaria*, flowers a little later and can be seen in the old collection on Forest Hills Road opposite the end of the Meadow Road. Here also are *M. ioensis* from the Mississippi Valley and its double-flowered variety known as the Bechtel Crab.

The double pink flowers of this tree look like roses, and when it is in bloom excite the interest and admiration of visitors to the Arboretum. In the old collection, too, are plants of *M. fusca*, the only wild Apple tree in the Pacific states, and a plant of *M. Dawsoniana*, a hybrid between *M. fusca* and the common Apple which appeared many years ago in the Arboretum. The Crabapple to which the southern forests owe so much of their spring beauty, *M. angustifolia*, fortunately has proved hardy in, the Arboretum, and there are large specimens on Centre Street walk in the rear of the Hickories and in the Peter's Hill Apple Group. It is the latest of the American species to flower, and the flowers are of a rather deeper pink than those of the other American species. In the Peter's Hill Collection may be seen several plants of *M. Soulardi*, a tree which occurs occasionally over large areas in the Mississippi valley and is believed to be a natural hybrid between *M. ioensis* and the common cultivated Apple.

Two Chinese Roses. For many years the Cinnamon Rose, *Rosa cin-namomea*, has been the first Rose in the Arboretum to open its flowers but this year two Chinese species are beginning to flower at the same time. These are *R. Hugonis* and *R. omeiensis*. The former has pale yellow single flowers about two and a half inches in diameter and is a tall, perfectly hardy free-flowering shrub with slender erect and spreading, pale brown stems and small pale leaves. There are not many yellow flowering Roses that are perfectly hardy and free-flowering in this climate and *R. Hugonis* is certainly one of the most valuable single Roses which has lately been introduced into gardens. It is a native of western China and was first raised in England from seeds sent to the British Museum by the missionary for whom it has been named. There is a plant of this Rose in the Shrub Collection which will be in full bloom when this Bulletin reaches its Massachusetts readers. *Rosa omeiensis* is flowering in the Arboretum for the first time. It is a vigorous shrub with young stems covered with bright red prickles, and pure white fragrant flowers hardly more than an inch in diameter, borne singly at the ends of short lateral twigs, and bright red ellipsoidal fruits which are borne on stout, elongated, yellow, fleshy stalks, and are very showy. It is common on many of the mountain ranges of western China at elevations of from 6,000 to 11,000 feet above the sea, and sometimes grows twenty feet tall and forms great thick-kets. Its name is derived from that of one of the sacred mountains of China, Mt. Omei, where it is common. This Rose promises to be a valuable and distinct garden shrub in this climate, and its hardiness, vigor and stout stems armed with numerous straight spines suggest its value as a hedge plant. It will be found in the collection of Chinese shrubs on the southern slope of Bussey Hill with the other Roses raised from seeds collected by Wilson in western China.

By an unfortunate typographical error on page 14 of the last issue of these Bulletins (No. 4) the flowers of the Lilacs *Macrostachya* and *Gloire de Moulins* were described as double white instead of pink, and the flowers of *Madame Lemoine* and *Miss Ellen Willmott* were described as pink instead of double white.

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